

HELMINTHOLOGICAL ABSTRACTS

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HELMINTHOLOGICAL ABSTRACTS.

Each volume covers the literature published in a single year and will be issued in five parts: four quarterly parts and a fifth supplementary part containing abstracts coming to hand late together with the annual indexes. For example, the first four parts of Vol. III, covering the 1934 literature, are due for issue in May, August, November, 1934, and February, 1935; the fifth part will appear during the summer of 1935. Meanwhile, the first part of Vol. IV (covering the 1935 literature) will have been issued in May, 1935. Thus there is an intentional overlap in the issue of parts of successive volumes, an overlap inherent in the scheme to include in a single volume only the literature of a single year.

HELMINTHOLOGICAL ABSTRACTS

Vol. III, No. 1.

1—Agriculture and Live-Stock in India.

- a. BHALERAO, G. D.—“The common worms of cattle in India and their control.” IV (1), 3-15. [1934.]

(a) Bhalerao gives a well illustrated summary of the principal helminths parasitic in cattle in India and discusses the general preventive measures for their control.

R.T.L.

2—American Journal of Hygiene.

- a. SARLES, M. P.—“Production of fatal infestations in rabbits with *Trichostrongylus calcaratus* (Nematoda).” XIX (1), 86-102. [1934.]
- b. CORDI, J. M. & OTTO, G. F.—“The effect of various temperatures on the eggs and larvae of *Strongyloides*.” XIX (1), 103-114. [1934.]
- c. AUGUSTINE, D. L.—“Studies on the subject of prenatal Trichinosis.” XIX (1), 115-122. [1934.]
- d. MILLER, JR., H. M.—“Specific immune serums as inhibitors of infections of a metazoan parasite (*Cysticercus fasciolaris*).” XIX (1), 270-277. [1934.]
- e. AMEEL, D. J.—“*Paragonimus*, its life history and distribution in North America and its taxonomy (Trematoda: Troglotreumatidae).” XIX (2), 279-317. [1934.]

(a) Sarles has investigated the reaction of rabbits to varying doses of *Trichostrongylus calcaratus*. Heavy single doses were found to result in the death of the animal as might also weekly increasing doses. However, if these doses were carefully graded, immunity reactions were induced which resulted either in a resistance to super-imposed doses or in a complete self-cure. Even when the disease ran a fatal course, gross lesions were absent except for extreme emaciation.

P.A.C.

(b) Cordi and Otto find that the free-living stages of *Strongyloides fülleborni* are viable only within narrow limits of temperature and are short lived even at the optimum temperature. The fact that both eggs and larvae are ill-adapted to resist temperature changes may account for its limitation to tropical and sub-tropical regions.

The optimum temperature for development is 23-30°C. though it will go on in greater or less degree between 10 and 40°C. Above 43°C. all stages are killed.

P.A.C.

(c) Augustine has been able to confirm the conclusion of Stäubli that pre-natal infection with trichinosis does not occur.

Observations were carried out on rabbits, rats, pigs and a human child born of trichinosed parents. In no cases was an eosinophilia present in the offspring while serological tests gave negative results. At post-mortem examination these negative results were confirmed.

P.A.C.

(d) Miller jr. has found that it is possible to arrest the infection of the rat with the parasite *Cysticercus fasciolaris* by means of immune serum.

P.A.C.

(e) Ameel has followed out in detail the life history of *Paragonimus* in North American minks and muskrats. The molluscan host is *Pomatiopsis lapidaria*, the second intermediaries are species of the crayfish genus *Cambarus*. The size of the gut in the second generation redia was the only difference noted between the lung flukes of North America and Asia.

R.T.L.

3—Annales de Parasitologie Humaine et Comparée.

- a. SKRJABIN, K. I. & ANDREEWA, N. K.—“Un nouveau nématode : *Crassicauda galiakiana* n. sp. trouvé dans les reins de *Delphinoptera leucos*.” XII (1), 15-28. [1934.]
- b. TSCHERNIKOWA, C.—“Un nouveau nématode : *Habronema skrjabini* n. sp. du chat sauvage.” XII (1), 29-34. [1934.]
- c. CALLOT, J. & DESPORTES, C.—“Sur le cycle évolutif de *Schistocephalus solidus* (O.-F. Müller).” XII (1), 35-39. [1934.]
- d. OBITZ, K.—“Recherches sur les oeufs de quelques Anoplocephalidés.” XII (1), 40-55. [1934.]
- e. FOUNIKOFF, S.—“Situation de *Filaria clava* Wedl, 1855 des pigeons dans la classification des nématodes.” XII (1), 61-66. [1934.]
- f. BRUMPT, E.—“Reproduction expérimentale du sarcome hépatique du rat par le cysticerque du *Taenia taeniaeformis* (= *T. crassicolis*) du chat. Rareté de cette tumeur chez les rats sauvages de Caracas. (Note préliminaire.)” XII (2), 130-133. [1934.]

(a) Skrjabin and Andreeva after comparing *Crassicauda galiakiana* n. sp. from *Delphinoptera leucos* with *C. crassicauda*, *C. boopis* and *C. bennetti* raise the subfamily to family rank and transfer Crassicaudidae fam. nov. from the suborder Filariata to the Spirurata.

R.T.L.

(b) From five postmortems on the wild cat *Prionailurus cuptilura* the following 6 parasites were found. *Toxocara mystax*, *Ancylostoma caninum*, *Taenia pisiformis*, *Mesocostoides lineatus*, *Diphyllobothrium mansonii* and a new species *Habronema skrjabini*. A synoptical table is given of the eight species of *Habronema* known in mammals. Four of these occur in carnivores, viz., *H. noveli*, *H. chevreuxi*, *H. grimaldiae* and *H. skrjabini* while the other four occur in Solipedes, viz., *H. megastoma*, *H. microstomum*, *H. zebrae* and *H. muscae*.

R.T.L.

(c) A fatal infection of *Anas boschas* with *Schistocephalus solidus* is reported by Callot and Desportes. *Cyclops viridis* even in the nauplius stage is an efficient intermediate host. *Gasterosteus aculeatus* and *Pygosteus pungitius* in the lake of the Bois de Boulogne were found to be heavily infested with the plerocercoids.

R.T.L.

(d) The longevity and resistance to desiccation and to various other physical and chemical agents of various species of Anoplocephalidae has been studied by Obitz. Humidity is essential to the survival of the embryos. *Cittotaenia ctenoides* eggs survived nearly 6 months, *Anoplocephala magna* over 10 months. Experiments on three rabbits failed to confirm the hypothesis of Konsuloff & Ssinitzin regarding the mode of transmission of the Anoplocephalidae.

R.T.L.

(e) A differential diagnosis of *Filaria clava* leads Founikoff to make this species the type of a new genus *Eulimdana* in the subfamily Aproctinae and related particularly to *Pelecitus*. R.T.L.

(f) With eggs of *Taenia crassicolis* of American origin, supplied by Bullock & Curtis, Brumpt has produced a massive sarcoma of the liver with secondary metastases 8 months after ingestion of the eggs. Success only occurred where more than four cysticerci were present. R.T.L.

4—Annals and Magazine of Natural History.

- a. BAYLIS, H. A.—“Miscellaneous notes on parasitic worms.” (Ser. 10), XIII (74), 223-228. [1934.]
- b. BAYLIS, H. A.—“A little-known nematode parasite of the eel.” (Ser. 10), XIII (74), 235-240. [1934.]
- c. BAYLIS, H. A.—“On a collection of cestodes and nematodes from small mammals in Tanganyika Territory.” (Ser. 10), XIII (75), 338-353. [1934.]
- d. BAYLIS, H. A.—“A nomenclatural correction.” (Ser. 10), XIII (75), 400. [1934.]
- e. SINHA, BIPIN BIHAR.—“On the morphology and systematic position of *Cephalogonimus magnus*, sp. n. (Trematoda), from *Trionyx gangeticus*.” [A correction. Ann. Mag. Nat. Hist. (Ser. 10), x, p. 419, 1932.] (Ser. 10), XIII (75), 400. [1934.]

(a) Baylis contributes a number of notes on parasitic nematodes and cestodes. He has been able to confirm that vultures are the normal hosts of *Thelazia depressa* by an examination of specimens from the orbit of *Sarcogyps calvus*, killed at Chiengmai, North Siam. He also confirms the record of the occurrence of *Trichostrongylus colubriformis* in squirrels by an examination of material from 4 grey squirrels (*Sciurus carolinensis*) from the neighbourhood of Oxford.

Specimens of a cestode from the duodenum of the clawed frog, *Xenopus laevis*, from Lake Bunyoni, Uganda, answered to the description of *Dibothriocephalus xenopi* except in having a larger number of testes per segment. The author, however, assigns them to this species which he considers should belong to the genus *Chlamydocephalus*. Baylis clears up the curious confusion made by Baer in 1928 between *Hymenolepis scutigera* and *Monopylidium soricinum* (= *Amoebotaenia subterranea*), two cestodes of the common shrew, *Sorex araneus*, and gives the synonymy of both species. A short discussion on *Hymenolepis singularis*, also from the shrew, is given. J.N.O.

(b) Baylis redescribes “*Nematoxys*” *tenerrimus* Linst., 1878 from the intestine of an eel (*Anguilla anguilla*) taken in the River Test, Hampshire. Although most of the species in the genus *Nematoxys* Schn., 1866, which has fallen into synonymy, have been shown to belong to other genera the form under discussion has not been assigned to any modern genus and the author accordingly erects for its reception *Paraquimperia* n. g., a definition of which is given. The nematode shows a fairly close resemblance in some respects to *Quimperia* and in others to *Gendria* but differs from both in the absence of a preanal sucker in the male. Baylis emends his previous definition of the family Quimperidae to include this new genus. J.N.O.

(c) In this collection from Tanganyika Baylis finds several new hosts for well-known species chiefly from rodents. The new species are *Numidica*

petrodromi n. sp. from *Petrodromus nigriseta*, and *Rictularia harrisi* n. sp. from *Mastomys coucha microdon*. Two new genera are differentiated, viz., *Cyathospirura* with *Habronema chevreuxi* as type and *Pseudophysaloptera* with *P. soricina* n. sp. from a shrew *Crocidura* sp. as type and only species. R.T.L.

(d) The name *Choanotaenia soricina* should have been given for *Amoebotaenia subterranea* in Baylis' paper "Miscellaneous notes on parasitic worms." [See No. 4a above.] R.T.L.

(e) The Editors of Annals and Magazine of Natural History apologize for errors in all the measurements given in Sinha's paper. [See Helm. Abs., I, No. 181b.] R.T.L.

5—Annals of Tropical Medicine and Parasitology.

- a. VAZ, Z.—"Redescription of *Tetracheilonema quadrilabiatum* (Molin, 1858), a filariid worm-parasite of South American Tinamiformes birds." xxviii (1), 21-24. [1934.]
- b. ADAMS, A. R. D. & WEBB, L.—"A survey of the protozoal and helminthic infestation-rates of the male prison and reformatory inmates of Beau Bassin Prison, Mauritius." xxviii (1), 25-35. [1934.]
- c. MEGGITT, F. J.—"The theory of host specificity as applied to cestodes." xxviii (1), 99-105. [1934.]

(a) From his examination of *Tetracheilonema quadrilabiatum* Vaz concludes that *Filaria hoffmanni* recently described by Mazza & Fiora is identical with it, while *Filaria tinami variegati* is distinct. R.T.L.

(b) In a paper dealing principally with the causation of an outbreak of dysentery in Mauritius, Adams and Webb note an unusually high rate of infection with *Trichuris*. Hookworm is chiefly *Necator americanus* and Bilharzia solely *S. haematobium*. *Taenia saginata* was noted on two occasions. *Clonorchis sinensis* is not endemic but occurs in Chinese immigrants. R.T.L.

(c) Meggitt controverts the theory recently put forward by Fuhrmann (1932) that a species of cestode is naturally limited to a single group of hosts. He claims that the host specificity theory is disregarded by most modern research workers. R.T.L.

6—Archiv für Schiffs- und Tropenhygiene.

- a. KALANTARIAN, H.—"Zur Trichostrongylosis in Armenien." xxxviii (1), 41-43. [1934.]
- b. TARASSOW, W.—"Das Schwein und der Hund als endgültige Träger des *Diphyllbothrium latum*." xxxviii (4), 156-159. [1934.]

(a) Kalantarian records the case of an Armenian parasitized by *Taenia saginata*, *Ascaris*, *Trichuris*, *Enterobius* and 3 species of *Trichostrongylus*. Two of the latter, *T. vitrinus* and *T. skrjabini*, have not hitherto been found in man in Armenia. B.G.P.

(b) Tarassow experimentally infected dogs with *Diphyllbothrium latum* and found, contrary to the opinion of Essex, that a large proportion of eggs passed by the dog developed to the onchosphere stage (about 50 per cent. as compared with about 75 per cent. of eggs from man). Thus the dog is important as a reservoir and as a factor complicating campaigns against this parasite. He also experimentally infected pigs and then found that, in four Russian villages, out of 15 pigs examined 8 were naturally infected. B.G.P.

7—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. CABRIZA, A. S.—“Tratamiento de la verminosis intestinal por el aceite de quenopodio y el tetracoloruro de carbono.” IV (1), 65-71. [1934.]

(a) In answer to a correspondent the Editor here prints a section of a handbook written by Cabriza, giving details of dosage, indications and contra-indications for the use of oil of chenopodium, carbon tetrachloride and a mixture of the two in the ratio 1 : 2, against intestinal helminths. B.G.P.

8—Beretning (10th) fra Statens Landbrugsforsøg paa Faerøerne.

- a. LÜTZEN, M. W. & BOVIEN, P.—“Leveriktens Forekomst og Bekaempelse paa Faerøerne.” [*Fasciola hepatica* in the Farøes.] 32 pp. [English summary p. 33.] [1934.]

(a) Lützen and Bovien contribute a full discussion of the liver fluke problem in the Farøe Islands, where it has long been enzootic and where simple preventive measures have so far been employed.

The paper deals with the distribution of the infection in the islands, the measures taken to eradicate it, and the life cycle of the parasite. Two fresh-water snails occur in the Farøes, viz., *Lymnaea ovata* and *L. truncatula*, but the former, though more widespread, is not a host. It is estimated that present methods of farming expose 10,000 sheep annually to infection. The writers' recommendations include pasture-drainage and grazing sheep on high level pastures, where the snails are scarce, for as many months in the year as possible. The drug “Distol” has been successfully employed as an anthelmintic. S.G.S.

9—Berliner Tierärztliche Wochenschrift.

- a. SCHMID, F.—“Ueber Parasiten und parasitäre Veränderungen der Harnorgane bei Silberföhsen.” L (3), 33-36. [1934.]
 b. HERMANN, G.—“Gibt es eine Pankreas-Irritation bei Wurmbefall der Hühner?” L (6), 81-84. [1934.]
 c. HOEFNAGEL, K.—“Echinokokkenkrankheit in der Provinz Friesland und ihre Bekämpfung.” L (12), 205-207. [1934.]
 d. KRAUSE, C.—“Ueber den Alveolarechinokokkus der Lunge bei Rindern und Büffeln.” L (12), 207-209. [1934.]
 e. TRAWINSKI, A.—“Biologische Untersuchungsmethoden zur Feststellung der Trichinose bei Schweinen.” L (12), 223-224. [1934.]

(a) Nodules containing living larvae of (apparently) *Toxascaris* were found by Schmid in the kidneys of 85 per cent. of the silver foxes at a farm in Upper Hessa. Similar nodules were found in the kidneys of a young dog near Giessen. The urinary bladders of the silver foxes were infested with *Capillaria plica*, also to the extent of 85 per cent. Inflammatory changes and haemorrhages were found in the vesical mucosa. Neither the ascaris larvae nor the capillarias were giving rise to clinical symptoms. B.G.P.

(b) Hermann has made some observations which seem to show that in chickens a heavy worm burden may bring about changes in the pancreas directly comparable with those found in human diabetes. There are changes in the blood sugar content while histologically in the pancreas is seen a dropsical degeneration of the islands, followed by atrophic changes and hyaline degeneration. There is a chronic peri- and intra-insular inflammation. P.A.C.

(c) Hoefnagel states that in Friesland hydatid has hitherto been common in pigs, sheep and other animals and in man. The incidence has been steadily falling since the meat inspection Act of 1919, and in recent years further improvement has been made by (i) making compulsory the inspection of meat slaughtered domestically (*i.e.*, outside the big abattoirs) and (ii) storing confiscated meat and offal in locked containers, collecting them by motor van and destroying them in a factory at which the fat is extracted.

B.G.P.

(d) After reviewing some of the existing statistics of alveolar hydatid in man and animals, and explaining why such data should be received with caution, Krause proceeds to give the incidence of this condition in oxen and buffalo examined at the Sofia abattoir. Of 733 oxen 90 per cent. were infected with hydatid, cystic and alveolar, and of 221 buffalo 75 per cent. In buffalo only one alveolar hydatid was found, in the liver, while in oxen it was found in the liver in 3.5 per cent. and in the lungs in 3 per cent., but here only once was the parasite fertile. In the lungs the lesions varied in size up to a maximum of 10 cm. and were mostly situated near the surface. They were hard, and creaked under the knife. Frequently, central necrosis had produced a large cavity filled with a grey watery fluid; whereas in the liver central necrosis was followed by calcification instead of liquefaction.

B.G.P.

(e) Trawiński reports excellent results from both the intradermal test and the precipitin reaction in trichinous pigs. He suggests the use of the former in living animals and the latter at the slaughter house.

The antigen was prepared from trichinella larvae, isolated from artificially infected rabbits by digesting the masseters with pepsin and HCl. The unencapsuled larvae come out into the digesting fluid and are concentrated by centrifuge and repeatedly washed. They are then dried and weighed, and extracted with 1 in 500 NaCl solution. The intradermal reaction in pigs begins in 4 to 8 hours after injection and lasts about 40 hours. The precipitin reaction is consistently positive with pig sera from the 11th day of infection, and occurs within 20 minutes to 3 hours. It was controlled with ascaris and hydatid antigens and by testing the sera of ascaris-infected pigs with trichinella antigen. Trawiński considers that the parallel work of Bachman, Augustine and Theiler is invalidated by their use of Coca's solution in preparing the antigen; he finds that this yields positive precipitin reactions with the sera of healthy animals.

B.G.P.

10—Brasil-Medico.

- a. VELHO-DA-SILVA & PONTES, J. P. L.—“Estados vesiculares determinados por parasitas animais. Cholecystopathias por *Lamblia* e *Strongylus*.” XLVIII (2), 28-31. [1934.]

(a) After dealing briefly with 6 cases of cholecystitis due to lamblia, Velho-da-Silva and Pontes describe a seventh case where the causal organism appeared to be *Strongyloides stercoralis*, which was removed in considerable numbers by duodenal sound.

B.G.P.

11—British Medical Journal.

- a. MORRISON, W. K.—“Cysticercosis in twin brothers aged 13 years.” No. 3809, 13-14. [1934.]

(a) In his commentary on these cases Morrison states that the radio-opacities in the skull were so small that they might easily have been overlooked and that in cases of epilepsy suspected of cysticercous origin it would be much better to devote the radiographic examination to the soft tissues. The routine suggested is lateral view of skull, root of neck, upper arm, forearms, thighs and legs. At present radiology can play a part in the diagnosis only when calcium is deposited in the dead parasite. R.T.L.

12—Bulletin de la Société de Pathologie Exotique.

- a. HOUDEMER, E.—“Au sujet d’une coutume favorisant l’infestation des Indochinois par *Clonorchis sinensis* (Cobbold, 1872).” XXVII (1), 21-23. [1934.]
- b. TISSEUIL, J.—“Filaire chez la sarigue *Philander*.” XXVII (1), 28-30. [1934.]
- c. JOYEUX, C., HOUDEMER, E. & BAER, J.—“Recherches sur la biologie des *Sparganum* et l’étiologie de la sparganose oculaire.” XXVII (1), 70-78. [1934.]
- d. RIOU, M.—“Localisation anormale d’un ver de Guinée avec présence de nombreux embryons dans le pus.” XXVII (1), 86-87. [1934.]
- e. ROSETTE, R.—“Un cas de syngamose laryngienne chez le mouton.” XXVII (3), 264-265. [1934.]

(a) Houdemer draws attention to local customs in Annam which are favourable to the spread of clonorchiasis. He lists 9 species of fish which are eaten in an uncooked state, and 3 of these are known carriers of *Clonorchis sinensis*. One of them, *Carassius auratus* is actually eaten alive without having been scaled. B.G.P.

(b) Tisseuil superficially describes a species of filarial worm from the peritoneal cavity of *Philander philander* from French Guiana. No identification is suggested. B.G.P.

(c) Joyeux, Houdemer and Baer discuss the aetiology of ocular sparganosis in Indo-China in the light of experiments on the biology of the sparganum. There is no doubt that *Diphyllbothrium erinacei europaei* is present there in addition to *D. mansoni*, and other species may also be involved (Faust records 6 from China).

D. erinacei is shown experimentally to prefer amphibians as second intermediaries, whereas *D. mansoni* prefers warm-blooded animals. The normal host for the adult *D. erinacei* is probably the cat, although the dog will also serve. *D. erinacei* has a wide distribution extending to the Mediterranean littoral; the limitation of ocular sparganosis to the far east is probably due to a parallel limitation in the custom of using split-frog poultices. B.G.P.

(d) Riou describes a purulent adenitis in an inguinal gland of a native of Mauritania. The pus was bacteria free but contained numerous guinea-worm embryos. On excision of the gland the adult guinea-worm was discovered. It is suggested that suppuration was due solely to the worm. B.G.P.

- (e) Rose Rosette describes without giving a specific diagnosis a fatal case of syngamiosis. The locality is also unfortunately omitted. R.T.L.

13—Comptes Rendus des Séances de l'Académie des Sciences.

- a. MARCENAC.—“Pouvoir anthelminthique de certains composés chlorés du butane dans la cylicostomose du cheval.” CXCVIII (5), 510-512. [1934.]

(a) Marcenac has found that dichlorobutane and chloro-butylene ($\text{CH}_3\cdot\text{CCl}_2\cdot\text{CH}_2\cdot\text{CH}_3$ and $\text{CH}_3\text{CCl}:\text{CH}\cdot\text{CH}_3$) are very valuable anthelmintics against cylicostomes in horses.

The dose is 0.18-0.2 cc. per kgm. of body weight. The drugs appear to be retained for some time in the intestine since their characteristic odour is present in the faeces for 4 or 5 days and in the breath for 6 or 7 days. This retention and slow absorption favour the destruction of larvae encysted in the mucosa. B.G.P.

14—Comptes Rendus des Séances de la Société de Biologie.

- a. RODHAIN, J. & VAN HOOFF, M. T.—“Essais de chimiothérapie anti-helminthique.” CXV (2), 192-194. [1934.]
 b. DÉVÉ, F.—“L'‘anatoxine hydatique’ de Ymaz Apphatie ne possède pas de propriétés curatives à l'égard de l'échinococcose expérimentale.” CXV (9), 954-956. [1934.]
 c. DÉVÉ, F.—“Essai d'immunisation anti-échinococcique par injections sous-cutanées de membranes hydatiques broyées à l'état frais.” CXV (10), 1025-1026. [1934.]

(a) Rodhain and Van Hoof have examined the anthelmintic action against *Distomum cylindraceum*, the lung worm of frogs, of three antimony compounds, CCl_4 , and tetrachlorethylene administered in large doses. None were effective. They suggest that the inefficiency is due to the localization of the parasite in the lungs. P.A.C.

(b) Dévé was unable to show that subcutaneous injections of hydatid anatoxin had any curative power with regard to developed hydatid cysts, as had been suggested by Apphatie. P.A.C.

(c) Dévé repeatedly inoculated mice and rabbits subcutaneously with fresh powdered hydatid membrane but was unable to show that an immunological response was induced. It possessed neither curative nor preventive power. P.A.C.

15—Deutsche Medizinische Wochenschrift.

- a. BRÜNING, H.—“Eingeweidewürmer und ihre Bekämpfung.” LX (12), 425-431. [1934.]

(a) Brüning discusses various anthelmintics suitable for use against the commoner intestinal helminths of man. B.G.P.

16—Deutsche Tierärztliche Wochenschrift.

- a. CLAUSSEN, L.—“Ueber Spulwurminvasion (Heterakidiasis) bei Hühnern.” XLII (2), 17-20. [1934.]

(a) Claussen records several cases of chicken infestation with *Heterakis papillosa*, the pheasant caecal worm, and observes that in the chicken the parasite tends to induce a more marked reaction than in the pheasant.

In the caecum the sub-mucosa is strongly hypertrophied and forms broad outgrowths supporting well marked ridges of the mucosa. Nodules are formed by the larvae and these cause atrophy of the surrounding gland tissue, the whole being surrounded by an inflammatory zone. P.A.C.

17—Eastern States Cooperator.

- a. CRAM, E. B.—“Strategy for war on poultry parasites.” X (1), 3-5, 20, 26. [1934.]

(a) Cram reviews the various modes of development in the case of the common parasites of poultry and discusses the different methods which might be employed to combat these pests.

Among the weapons mentioned is the swine sanitation system, the basic principles of which might well be applied to poultry rearing. The isolation of young chicks from adult birds as a preventive measure is shown to be simplified in the case of poultry through artificial brooding methods.

D.O.M.

18—Estate Magazine.

- a. HODSON, W. E. H.—“Stem eelworm in potato.” XXXIV (4), 275-276. [1934.]

(a) Hodson gives a brief account of the life cycle of *Anguillulina dipsaci*, the damage it causes to the potato, and the symptoms of its attack.

As no adequate control measure is known, it is suggested that where this eelworm is suspected to be present the crop should be used immediately and neither clamped nor used for seed purposes. Further, where an outbreak has occurred, potatoes should not be regrown on the same land for a period of at least four years. M.J.T.

19—Gesundheit und Wohlfahrt.

- a. LARDELLI, A.—“Recherches sur la fréquence des helminthes et des protozoaires intestinaux chez les enfants des écoles de Lausanne.” XIV (2), 65-94. [1934.]

(a) In school children at Lausanne, Lardelli found helminth infections at the following rates:—*Ascaris lumbricoides* 17.3 per cent., *Trichuris* 29 per cent. and *O. vermicularis* 2.1 per cent. In addition one case of *Hymenolepis nana*, two of *Taenia saginata* and one of *Rhabditis* were noted. The paper deals also with methods of treatment, and with protozoal infections. R.T.L.

20—Indian Journal of Medical Research.

- a. MAPLESTONE, P. A. & CHOPRA, R. N.—“The effect of hexylresorcinol on cats.” *XXI* (3), 519-521. [1934.]
- b. KORKE, V. T.—“Observations on filariasis in some areas in India. Part X. Gwalior State area.” *XXI* (3), 569-580. [1934.]

(a) When given in olive oil the action of hexylresorcinol on the mucous membrane of the stomach and duodenum is much less severe than when given in alcohol but its effect on the liver and kidney appears to be about the same whichever vehicle is employed. R.T.L.

(b) A comparatively high prevalence of *Filaria bancrofti* occurs, according to Korke, in the Gwalior State between 500 and 1,000 feet. A similar percentage of infection occurred in areas with marked differences in physical, climatic and crop conditions. R.T.L.

21—Indian Medical Gazette.

- a. PROMMAS, C. & DAENGSVANG, S.—“Nine cases of human gnathostomiasis. *LXIX* (4), 207-210. [1934.]

(a) Prommas and Daengsvang bring to 21 the total number of recorded cases of infection of man by *Gnathostoma spinigerum*. In addition they have seen 20 cases diagnosed clinically. The lesions occurred on the abdominal wall, chest, shoulder, face, hand and foot. Usually there was an eosinophilia. In each of the nine cases annotated in this paper the parasite was a male worm. R.T.L.

22—Journal of the American Medical Association.

- a. CRAIG, W. McK. & KERNOHAN, J. W.—“Cerebral Cysts.” *CII* (1), 5-10. [1934.]

(a) Craig and Kernohan classify cerebral cysts as congenital, inflammatory, traumatic, parasitic and neoplastic types. The commonest parasitic cyst is *Echinococcus*—although even it is rare in the United States—and they describe and illustrate a case in an Italian of 47 from whom several cysts were recovered on operation. The patient lived but improved little clinically. T.W.M.C.

23—Journal of the American Veterinary Medical Association.

- a. WRIGHT, W. H.—“The present status of anthelmintic medication for gastrointestinal parasites of the horse.” *LXXXIV* (1), 11-24. [1934.]
- b. REBRASSIER, R. E.—“Pyrethrum as an anthelmintic for *Ascaridia lineata*.” *LXXXIV* (4), 645-648. [1934.]

(a) Wright believes that administration of drugs to horses by stomach tube is the preferred method, the animals being fasted beforehand for 18 to 24 hours in the case of parasites of the stomach and small intestine, and 36 hours for the large intestine. The contra-indications of the various drugs are considered in detail. He finds carbon disulphide the best drug for bots, habronema and ascarids, and oil of chenopodium for strongyles and cylicostomes, although other drugs in use are also considered. T.W.M.C.

(b) Rebrassier has found that a preparation containing 0.8 per cent. pyrethrin, in doses of 200 milligrammes, forms an effective vermicide in the treatment of *Ascaridia lineata* infections in chickens.

Using 30 chickens, 333 worms were passed in 72 hours and 17 were found at autopsy, the efficiency of the drug being 95.14 per cent. In 24 birds, the treatment was 100 per cent. effective. Pyrethrin is especially useful as it is lethal to the parasites, non-toxic to the host and needs no purgative.

P.A.C.

24—Journal of the Council for Scientific and Industrial Research. Australia.

- a. ROSS, I. C.—“Parasitological and other problems in sheep in Western Australia.” VII (1), 1-8. [1934.]

(a) The increasing prevalence of worms is an important factor in the difficulties which have been experienced in the rearing of Merino sheep in the Midland and Great Southern Districts of Western Australia. The probable importance of nutritional factors and parasitism is discussed. It is considered that the small trichostrongyles are the more serious of the worms, but that the importance of *Chabertia ovina* should not be overlooked. Under normal conditions the severity of nutritional conditions to which the young sheep are subjected is more important than the degree of parasitic infestation.

R.T.L.

25—Journal of Helminthology.

- a. TRIFFITT, M. J.—“Experiments with the root excretions of grasses as a possible means of eliminating *Heterodera schachtii* from infected soil.” XII (1), 1-12. [1934.]
- b. STANILAND, L. N. & GOODEY, T.—“A dwarfing disease of cultivated violets associated with the eelworm, *Aphelenchoides olesistus*.” XII (1), 13-22. [1934.]
- c. EDWARDS, E. E.—“On the chrysanthemum nematode, *Aphelenchoides ritzeana-bosi* Schwartz, 1911 and its control.” XII (1), 23-32. [1934.]
- d. HODSON, W. E. H.—“*Anguillulina dipsaci* (Kühn), as a pest of bulbous irises.” XII (1), 33-38. [1934.]
- e. OLDHAM, J. N. & MORGAN, D. O.—“Helminth parasites observed in a herd of goats maintained at St. Albans, England.” XII (1), 39-46. [1934.]
- f. BUCKLEY, J. J. C.—“On *Syngamus nasicola* Linstow, 1899, from sheep and cattle in the West Indies.” XII (1), 47-62. [1934.]
- g. MORGAN, D. O. & CLAPHAM, P. A.—“Some observations on gape-worm in poultry and game birds.” XII (2), 63-70. [1934.]
- h. CLAPHAM, P. A.—“Some observations on the response of chickens to infestation with *Heterakis gallinae*.” XII (2), 71-78. [1934.]
- i. GOODEY, T.—“Observations on *Paratylenchus macrophallus* (de Man, 1880).” XII (2), 79-88. [1934.]
- j. BUCKLEY, J. J. C.—“On *Syngamus ierei* sp. nov. from domestic cats, with some observations on its life-cycle.” XII (2), 89-98. [1934.]
- k. BUCKLEY, J. J. C.—“On the development, in *Culicoides furens* Poey, of *Filaria* (= *Mansonella*) *ozzardi* Manson, 1897.” XII (2), 99-118. [1934.]

(a) Triffitt describes the effects of grass root excretions on the hatching of larvae of *Heterodera schachtii* as shown in laboratory and field experiments. Root excretions of rough- and smooth-stalked meadow grass, rye grass and cocksfoot were found to stimulate the larvae to hatch and emerge from the cysts although the grasses remained immune from infection. The stimulant

action was less than that exercised by potato root excretion but was fairly strong, particularly in the case of meadow grasses. Other grass species gave negative results. A field experiment showed that a grass ley incorporating smooth stalked meadow grass and rye grass reduced the proportion of viable eggs in the cysts dormant in the soil by 23·27 per cent. in one season and 48·63 per cent. in two seasons. Results are tabulated and the field experiment is being continued and extended. M.J.T.

(b) Staniland and Goodey give a detailed description of the occurrence and symptoms of a disease of violets found in Cornwall and Devon associated with *Aphelenchoides olesistus*, and suggest certain control measures.

The disease differs from one described by Schwartz (1911), in that in the present instance gall formation does not take place, the nematode does not belong to the variety *longicollis*, and is purely ecto-parasitic in habit. Reduction in the size of the crown with marked reduction or suppression of leaf blade and flower are the chief symptoms. The morphology of the nematode is described. As methods of control the use only of young plants from healthy stock is recommended, with removal of all plants found to be infected during later growth, and yearly change of land on which the crop is grown. Preliminary experiments indicate that hot water treatment of runners at 110°F. for 30 minutes, followed by rapid cooling in cold water is likely to prove satisfactory. M.J.T.

(c) Edwards discusses the problems arising from the incidence of leaf-blotch disease of chrysanthemums in the midland districts.

A brief historical review is given and the life history of the worm and progressive symptoms of attack are described. Hot water treatment for cuttings was found to be unsatisfactory. Experiments with hot water treatment for control of the disease showed that retardation of growth subsequent to treatment of the stools is overcome if the cuttings are ready to be taken at the time of immersion and the treatment is carried out at 110°F. for 15 minutes followed by rapid cooling in water. These results are, however, to be regarded as preliminary to further research. M.J.T.

(d) Hodson summarizes the information available on *Anguillulina dipsaci* as a pest of bulbous irises and describes in detail the symptoms of eelworm attack in the dormant bulb and during growth of *I. xiphioides* and *I. xiphium* hybrid.

Symptomatic differences appearing between these two species suggested that in the latter case the strain of eelworm was derived from narcissus, but experimental investigation indicated that this was not the case. Preliminary experiments on hot water treatment gave unsatisfactory results owing to the apparent lack of resistance of the bulbs to such treatment. M.J.T.

(e) Oldham and Morgan record the helminth parasites found in 80 goats examined over a period of 7 years at the Institute of Agricultural Parasitology. Fourteen goats were free from helminths; in the remainder were found one or more species of 17 species of nematodes and 2 of cestodes. Multiple infections were the rule, more than half of the parasitized goats harbouring 4 or more species of helminth; 4 goats harboured no less than

9 species each. With the exception of *Trichostrongylus capricola* and *Skrjabinema ovis*, all the recorded helminths are common parasites of sheep or cattle or both.

B.G.P.

(f) It is shown by Buckley that *Syngamus nasicola* is a valid species. It occurred in over 50 per cent. of the sheep examined in the West Indies. It also occurs there in goats and cattle. *Syngamus kingi* recorded from man is a synonym of *S. nasicola*.

R.T.L.

(g) Morgan and Clapham have obtained very successful infections of *Syngamus trachea* by first infecting *Eisenia foetida* (Annulata) with the eggs and then feeding these worms to the chickens.

By means of these earthworms, material obtained from the rook and pheasant were successfully transmitted. Only occasional successes could be obtained by direct feeding of eggs.

P.A.C.

(h) Clapham has carried out some experiments with *Heterakis* in chickens which seem to show that no immunity is conferred by an early infestation and that very little develops naturally with increasing age. Baker's statement that chicks with no *Heterakis* develop large gassy caeca was investigated but no evidence was found to bear it out.

P.A.C.

(i) Goodey redescribes the morphology of *Paratylenchus macrophallus* (de Man, 1880) and reviews the systematics of the genus. Originally described as *Tylenchus macrophallus*, the species is shown to belong to the genus *Paratylenchus* and to be identical with *P. bukowinensis* Micoletzky, 1921, *P. nanus* Cobb, 1923, *P. anceps* Cobb, 1923 and *P. besoekianus* Bally & Reydon, 1931 which therefore become synonyms.

M.J.T.

(j) Buckley describes *Syngamus ierei* sp. nov. from the pharynx and nares of domestic cats in Trinidad. It has affinities with *S. felis* but differs in the size of the mouth capsule, which has no supporting ribs. The spicules also are larger. Observations are made on the life cycle. Buckley suggests that an intermediate host is necessary as no infections resulted from feeding 3rd stage larvae to cats.

P.A.C.

(k) Buckley has studied the life cycle of *Filaria ozzardi* in the West Indies. Sand flies (*Culicoides furens*) were given an infective feed of blood of *F. ozzardi* carriers. Out of 200 flies 27.5 per cent. became infected. 5 per cent. of flies caught were naturally infected.

The morphology of the larval stages, which occur in the thorax, is described and illustrated by drawings and photographs.

P.A.C.

26—Journal of the Ministry of Agriculture.

- a. HODSON, W. E. H.—“Control of strawberry pests by hot-water treatment of runners.” XL (12), 1153-1161. [1934.]

(a) Hodson describes hot water treatment, its practical application and the results which may be expected to follow its correct use, for the control of strawberry pests.

Strawberry runners subjected to the treatment at 110°F. for 20 minutes and thereafter quickly cooled by cold water are freed from mites, aphids, red spider and possibly *Aphelenchoides fragariae*, and, when treated at a

suitable time—early autumn or mid-spring—the plants quickly recover from any initial check to growth and definitely benefit from the treatment. Details of the best methods of applying the treatment are given. M.J.T.

27—Journal of Parasitology.

- a. TALIAFERRO, W. H.—“Some cellular bases for immune reactions in parasitic infections.” xx (3), 149-161. [1934.]
- b. KRULL, W. H.—“Life history studies on *Cotylophoron cotylophorum* (Fischöeder, 1901) Stiles and Goldberger, 1910.” xx (3), 173-180. [1934.]
- c. MEGGITT, F. J.—“On some tapeworms from the bullsnake (*Pityopsis sayi*), with remarks on the species of the genus *Oochoristica* (Cestoda).” xx (3), 181-189. [1934.]

(a) Taliaferro notes that the same type of cell is always involved in an animal responding to an invasion, whether it be of protozoan, helminthic or bacterial nature, to immunizing processes or to the introduction of sterile foreign substances.

The cells involved are those of blood and connective tissue. Of these cells the polymorphonuclear leucocytes are the first to be mobilized but the macrophages are most directly involved and responsible for most of the work. When necessary small lymphocytes can be transformed into macrophages. In acquired immunity, macrophages are more important and may even produce weak antibodies, due to their greater and more specific activity. In helminthic infections eosinophile leucocytes are always a prominent feature, though as they also occur largely in all cases where foreign proteins are absorbed, it is suggested that they occur under conditions of sensitization or immunization of the host by protein antigen, and are associated with the defence against foreign toxic proteins which they may actually absorb.

P.A.C.

(b) Krull has experimentally infected the snail *Fossaria modicella*, widely distributed over the Western United States, with *Cotylophoron cotylophorum* and subsequently completed the cycle in calves. The eggs hatch in 4 weeks at room temperature. Development in the intermediate host occupies one month. The complete life cycle takes approximately six months.

R.T.L.

(c) Meggitt gives a comparative table of the 40 species of the cestode genus *Oochoristica* including a new form described as *O. osheroffi* n. sp. from *Pityopsis sayi*.

R.T.L.

28—Journal of the Royal Horticultural Society.

- a. GOULD, N. K.—“The hot water treatment of narcissus bulbs.” LIX (1), 78-81. [1934.]

(a) Gould discusses the merits of hot water treatment as a means of controlling *Anguillulina dipsaci* in narcissus bulbs.

Although the treatment properly applied controls eelworm, bulb-mites and the narcissus fly, it may assist in the dissemination of fungus parasites and “yellow stripe.” The importance of applying the treatment during the dormancy period to avoid subsequent damage to growth is emphasized and curves expressing the rate of development of three varieties during two seasons are given.

M.J.T.

29—Journal of the Royal Naval Medical Service.

- a. FOSBERY, F. W. A.—“Schistosomiasis in China.” xx (1), 68-70. [1934.]

(a) After briefly reviewing the aetiology, geographical distribution, symptoms, diagnosis, prognosis and treatment of *Schistosoma japonicum* infection, Fosbery mentions that waterproof shooting boots are apt to be cut by bamboo shoots and that carbolised vaseline and disinfectant baths are by no means reliable safeguards on shooting expeditions in China.

R.T.L.

30—Journal of Tropical Medicine and Hygiene.

- a. GIRGES, R.—“Studies on ascariasis. I. Geographical distribution, with special reference to Egypt.” xxxvii (6), 85-90. [1934.]

(a) Ascariasis, unlike Ancylostomiasis is much more infrequent in upper than lower Egypt, ranging in the former region from 0.7 to 3 per cent. and rarely 10 per cent., in the latter at about 50 per cent., of the whole population. This vast difference in spite of the uniformity of the customs of the people is attributed to the fact that in upper Egypt vegetables are never manured as they are in lower Egypt by night soil. A tabular statement gives the incidence of ascariasis in Egypt and other countries as revealed in published work.

R.T.L.

31—Journal of the Washington Academy of Sciences.

- a. VAZ, Z. & PEREIR, C.—“Two new parasitic worms of *Didelphys aurita*: *Skrjabinofilaria pricei* n. sp. and *Gongylonema marsupialis* n. sp.” xxiv (1), 54-56. [1934.]
 b. COBB, N. A. & STEINER, G.—“An annotation on the nematode genus *Pontonema* Leidy 1855.” xxiv (1), 56-61. [1934.]

(a) Vaz and Pereir describe and figure two new nematode species in *Didelphys aurita* from S. Paulo, Brazil: *Skrjabinofilaria pricei* from subcutaneous tissues, and *Gongylonema marsupialis* from the oesophagus. The latter species is based on two females and a fragment of a third, and the authors admit that, in the absence of males, the validity of the species cannot be established.

B.G.P.

(b) Cobb and Steiner re-establish the genus *Pontonema* and reduce to synonymy with it the genus *Paroncholaimus* Filipjev 1916. The diagnostic characters of the genus are given and the type species, *Pontonema vacillatum* Leidy 1855 is redescribed and figured. *Enoplus marinus* (Leidy 1855) Walton 1927 is also redescribed and figured.

M.J.T.

32—Lingnan Science Journal.

- a. CHEN, H. T.—“Helminths of dogs in Canton, with a list of those occurring in China.” xiii (1), 75-87. [1934.]

(a) Chen, in making a survey of the helminth parasites of dogs mostly from Canton, has examined 52 animals, 4 of which came from Foochow.

Trematode species were most numerous and, in order of prevalence, comprised: *Echinochasmus perfoliatus*; *Clonorchis sinensis* was found in 44.2 per cent. of dogs examined, which dispels the belief that dogs are unimportant reservoir hosts in South China. A maximum infection of 3,800 individuals from the liver was seen and in 8 dogs the fluke was found to live in the intestine. *Monorchotrema taihoku* and *Echinostomum ilocanum* are believed

to be new additions to the list of dog parasites in China. *Metagonimus yokogawai*, a *Paragonimus* sp., and a Lepodermatid were also observed. The nematodes were *Ancylostoma caninum*, *Toxocara canis*, *Dirofilaria immitis* and *Spirocerca sanguinolenta*, in order of relative abundance. Amongst the cestodes, *Dipylidium caninum* infected 77 per cent. of the dogs, while *Taenia crassicollis*, *T. hydatigena* and *Diphyllbothrium mansonii*, were rare. A list of the helminths occurring in dogs in China is given. J.N.O.

33—New England Journal of Medicine.

- a. RONKA, E. K. F.—“Infestation with *Diphyllbothrium latum*. Fish tape-worm.” CCX (11), 582-583. [1934.]

(a) Ronka gives the clinical history of a case of *Diphyllbothrium latum* infection in a patient of Finnish origin. There was no anaemia. The eosinophilia was 2 per cent. There were only functional intestinal disorders.

R.T.L.

34—North American Veterinarian.

- a. HARE, F.—“Notes on anthelmintic medication in horses.” XV (1), 37-38. [1934.]
 b. HALL, M. C.—“A manual of the tactics and strategy of warfare on parasites.” [To be continued.] XV (1), 40-49. [1934.]
 c. HALL, M. C.—“A manual of the tactics and strategy of warfare on parasites. Section II. Strategy and Tactics.” [To be continued.] XV (2), 24-34. [1934.]
 d. HALL, M. C.—“A manual of the tactics and strategy of warfare on parasites. Section III. The application of military principles in the war on parasites. Section IV. Strategic and tactical problems.” XV (3), 24-33. [1934.]

(a) Hare discusses his experiences with anthelmintics in horses and disagrees with a number of common statements on their use.

He does not find that oil of chenopodium in doses up to 20 cc. in linseed oil has an adverse effect on pregnant mares, or that carbon tetrachloride is of use against bots. He finds it unnecessary to withhold food before giving carbon disulphide for bots or ascarids. He finds carbon tetrachloride can be entirely dispensed with against equine parasites, the other two drugs mentioned above being more effective and safer.

T.W.M.C.

(b) Hall, visualizing the struggle against parasites as a true warfare, deals in this article with the nature of the war on parasites and describes the enemy forces, the organization of our forces, the weapons of the enemy and our own.

T.W.M.C.

(c) Hall continues his manual on warfare against parasites by dealing in this second instalment with Strategy and Tactics. Tactics occupies the major part of the paper, the principles of army tactics being ingeniously applied to parasitology.

T.W.M.C.

(d) In this third article Hall applies the application of military principles of strategy as propounded by Meyers to the war on parasites [see Helm. Abs., I, No. 363a, and (b), (c) above]. It is in the Diplomatic field dealing with human, legalistic and non-medical factors that to-day the position is weakest.

R.T.L.

35—Northwest Science.

- a. STILLINGER, C. R.—“The biology and symptomology on narcissus of *Anguillulina dipsaci* Gerv. and v. Ben. in relation to quarantine regulations.” VIII, pp. 17-29. [1934.]

(a) Stillinger gives an account of the economic importance, life history and symptoms produced by *Anguillulina dipsaci* on narcissus with special reference to quarantine regulations.

Symptoms of infection as they appear in the field are very fully dealt with and precautions which should be taken in segregating diseased and suspected stock and guarding against spread of disease are described. A summarized account of measures recommended for the elimination of the nematode by narcissus growers concludes the paper. M.J.T.

36—Pathologica.

- a. CIANCIOTTA, A.—“Reperti parassitologici negli ovini pugliesi.” xxvi (509), 213-214. [1934.]

(a) In the course of meat inspection in a slaughter-house in Apulia (Italy), Cianciotta found in a ram *Muellerius capillaris* in the lungs and *Dicrocoelium dendriticum* (and a ciliate) in the liver. The lesions are briefly described. B.G.P.

37—Phytopathology.

- a. GILL, D. L.—“A leaf nematode disease of begonia.” [Abstract of paper presented at the 25th Annual Meeting of the American Phytopathological Society.] xxiv (1), 9. [1934.]
 b. STEINER, G., BUHRER, E. M. & RHOADS, A. S.—“Giant galls caused by the root-knot nematode.” xxiv (2), 161-163. [1934.]
 c. STEINER, G. & BUHRER, E. M.—“*Paraphelenchus maupasi* attacks hyacinth bulbs.” xxiv (2), 163-164. [1934.]
 d. STEINER, G. & BUHRER, E. M.—“Disease symptoms produced by *Anguillulina pratensis* in yams.” xxiv (2), 164-165. [1934.]

(a) Gill gives a brief account of a leaf disease of begonias caused by *Aphelenchoides fragariae*.

Semi-tuberous begonias grown under glass are most susceptible. Nematodes gain entry to leaves through the stomata but only when moisture is present. The nematode survives in soil for at least 6 weeks. By the use of clean leaves for cuttings and clean soil, removing infected leaves, spacing plants to avoid direct contact and keeping the foliage dry, the disease can be controlled. M.J.T.

(b) Steiner, Buhner and Rhoads record the occurrence of galls of up to 2 feet in diameter caused by *Heterodera marioni* on the basal stems of *Thunbergia laurifolia*.

Great proliferation of the tissues takes place rapidly and the galls differ in many respects from those found on root structures. Old galls disintegrate and the crumbling tissues carry the nematode to the surrounding soil. It is suggested that as the galls are fully exposed to the sun autoregulation of temperature by the host plant must take place to keep the nematodes below the lethal temperature of about 117°F. M.J.T.

(c) Steiner and Buhner report a case *Paraphelenchus maupasi* Micoletzky causing disease symptoms in hyacinth bulbs. The symptoms, although slightly reminiscent of those produced by *Anguillulina dipsaci*, differ in that the nematodes enter the scales so that true “ring” symptoms do not appear. No male nematodes were found in this material. M.J.T.

(d) Steiner and Buhner describe the disease symptoms produced by *Anguillulina pratensis* in yams.

Yams from several tropical countries were found to be infected, the disease being characterized by numerous small elevations over the surface, the underlying tissue being brown and containing the nematodes. With the inward spread of the infected tissue the whole yam ultimately rotted.

M.J.T.

38—Proceedings of the Royal Society.

- a. CLAPHAM, P. A.—“Experimental studies on the transmission of gapeworm (*Syngamus trachea*) by earthworms.” Series B. cxv (791), 18-29. [1934.]

(a) That earthworms occasionally play some part in the transmission of the gapeworm of poultry has long been suspected. Clapham shows that the lesser earthworm *Eisenia foetida* is a true and very efficient intermediate host. *Lumbricus terrestris* is also implicated but is not so important.

Eisenia foetida infected from the faeces of infected rooks, partridges and pheasants were infective to chickens. *Syngamus merulae* undergoes the same life cycle. In earthworms *Rhabditis pellio* is a frequent source of confusion with the larvae of *Syngamus trachea*. Using experimentally infected earthworms the author was able to demonstrate that chickens 10 weeks old are normally resistant to infection but when fed on diets deficient in vitamin A and in calcium this resistance can be broken down and infestations set up.

R.T.L.

39—Proceedings of the Society for Experimental Biology and Medicine.

- a. FAUST, E. C. & HOFFMAN, W. A.—“Life history of Manson's blood fluke, *Schistosoma mansoni*. I. Extramammalian phase of the cycle.” xxxi (4), 474-476. [1934.]
- b. FAUST, E. C., JONES, C. A. & HOFFMAN, W. A. “Life history of Manson's blood fluke, *Schistosoma mansoni*. II. Mammalian phase of the cycle.” xxxi (4), 476-478. [1934.]
- c. FAUST, E. C. & JONES, C. A.—“Life history of Manson's blood fluke, *Schistosoma mansoni*. III. Blood picture of Schistosomiasis mansoni.” xxxi (4), 478-479. [1934.]
- d. HOBMAIER, A. & HOBMAIER, M.—“*Elaphostrongylus odocoilei* n. sp., a new lungworm in black tail deer (*Odocoileus columbianus*). Description and life history.” xxxi (4), 509-514. [1934.]

(a) The life cycle of *Schistosoma mansoni* in *Helisoma* (*Planorbina*) *guadeloupense* is completed in 24 to 28 days in summer and 30 to 35 days in winter. The primary sporocysts were first found on the eighth day. The cercariae of *S. mansoni* have two pairs of anterior secretory glands with large dense granules and four pairs of posterior secretory glands with finely granular contents. In a small percentage of freshly shed cercariae a head gland has been seen.

R.T.L.

(b) Experiments on rats, rabbits and monkeys show that sexual maturity in *Schistosoma mansoni* is reached between the 35th and 40th day after skin infection. *S. mansoni* usually migrates into the lower branches of the superior mesenteric vein and the inferior mesenteric vein to deposit eggs in the venules of the colon.

R.T.L.

(c) The blood picture in experimental infections with *Schistosoma mansoni* shows a leucocytosis paralleling the migrations of the larvae through the lungs followed by a gradually developing leukopenia with or without an eosinophilia. After the 40th day there is an excess of euglobulin in the blood plasma.

R.T.L.

(d) In 25 per cent. of 100 Black Tail Deer of the Californian Coast Range, Hobmaier and Hobmaier have found lungworm disease due to a new species of *Elaphostrongylus* viz., *E. odocoilei* n. sp. The larvae were present in innumerable microscopic tubercles which gave to the lung an indurated appearance. The adult worms were coiled up in the lymphatic spaces of the connective tissues. Several different species of slugs and snails act as intermediate hosts. A deer raised in captivity was experimentally infected from *Agriolimax campestris* and first stage larvae were recorded from the faeces 4 months later.

R.T.L.

40—Report (3rd) of the Director of the Institute of Animal Pathology.

- a. STEWART, J.—“The effects of nematode infestations on the metabolism of the host. Part I. Metabolism experiments.” pp. 58-76. [1934.]
- b. STEWART, J.—“The effects of nematode infestations on the metabolism of the host. Part II. The isolation of a substance capable of inhibiting enzyme action.” pp. 77-86. [1934.]
- c. SHEARER, G. D. & STEWART, J.—“The effects of nematode infestations on the metabolism of the host. Part III. The effects of nematode infestations on mineral metabolism.” pp. 87-129. [1934.]
- d. LAPAGE, G.—“The cultivation of infective nematode larvae on cultures of *Bacillus Coli*.” pp. 237-271. [1934.]
- e. STEWARD, J. S.—“*Onchocerca cervicalis* (Railliet and Henry 1910) and its development in *Culicoides nubeculosus* Mg.” pp. 272-284. [1934.]
- f. STEWARD, J. S.—“The occurrence of *Onchocerca cervicalis* in cases of fistulous withers and poll evil.” pp. 285-297. [1934.]

(a) Stewart shows that heavy infestation with nematodes seriously affects the metabolism of crude protein in lambs and suggests that this is caused in one of three ways. The nematodes may injure the stomach wall of the lamb and prevent the secretion of pepsinogen, or the enzyme, having been secreted, is absorbed by the parasites or thirdly, the parasites themselves may secrete something that neutralizes the action of the enzyme. The evidence with regard to the digestion of crude fibre is not conclusive but it is possible that the nematode infestation may affect it to some extent.

P.A.C.

(b) Stewart has demonstrated that extract of worms collected from the fourth stomach and intestines (mostly *Haemonchus contortus*) of lambs contains a substance which inhibits the action of pepsin. This would account for the fact that sheep heavily infested with nematodes are often in poor condition due, in part at least, to their inability fully to digest the crude protein in their ration. He calls this substance “Nezyme.”

P.A.C.

(c) Shearer and Stewart have shown that the presence of large numbers of nematodes (mostly *Haemonchus contortus*) in the intestine of lambs affects the metabolism of calcium and phosphorus by the host. A direct result of this inhibition will be seen, in young animals, in the retarded growth of the skeleton. The digestion of sodium and potassium is unaffected by the worm burden.

P.A.C.

(d) Lapage has successfully cultivated larvae of *Trichostrongylus*, *Ostertagia*, and *Chabertia* from the sheep and of *Graphidium strigosum* and *Trichostrongylus retortaeformis* from the wild rabbit, using pure cultures of a strain of *B. coli* as food. This he obtained originally from the intestines of exsheathed infective larvae.

He sterilizes the eggs with antiformin and seeds them on to a dilute broth medium inoculated with *B. coli*. He is of the opinion that *B. coli* is the normal food of these larvae. As the larvae can retain viable *B. coli* in their intestines till well after the infective stage has been reached, it is suggested that they may on occasion inoculate the final host with pathogenic bacteria.

P.A.C.

(e) Steward describes the adult *Onchocerca cervicalis* and its microfilaria which could be recovered from the ligamentum nuchae from cases of fistulous withers, between the hours of 8 a.m. and 6 p.m. The complete life history has been worked out.

Complete development of the microfilariae has so far only occurred in *Culicoides nubeculosus* but other species may be suitable vectors. All stages of the life history are illustrated by photographs.

P.A.C.

(f) Steward examined 30 horses suffering from fistulous withers and poll evil and found *Onchocerca cervicalis* in 66 per cent. of them.

The possible relation of *Br. abortus* to the disease was investigated. Agglutinins were detected in the serum of over 70 per cent. of the animals examined. The discharges from 12 cases were cultured and *Br. abortus* was only obtained from a single case. An attempt to cure an animal with injections of sodium p-aminophenylarsenate was not successful.

P.A.C.

41—Reports of Rothamsted Conferences.

- a. LEIPER, R. T. & TRIFFITT, M. J.—“Problems of potato growing. The eelworm problem.” xvi, pp. 18-24. [1934.]

(a) Leiper and Triffitt give a summary of the available knowledge relating to the economic aspects of *Heterodera schachtii* parasitic on potatoes in Britain.

The history and distribution of the pest in Britain is dealt with, together with the problems of specialized strains and the financial significance of infections in different districts. Methods of reducing eelworm damage by rotations and of eliminating eelworm from infected land during the rotation period are discussed. It is suggested that certified eelworm-free seed tubers should be made available to avoid the further spread of infection. M.J.T.

42—Smithsonian Miscellaneous Collections.

- a. PRICE, E. W.—“New trematode parasites of birds.” xci (6), [Reprint 6 pp.] [1934.]
 b. PRICE, E. W.—“New digenetic trematodes from marine fishes.” xci (7), [Reprint 8pp.] [1934.]

(a) Price gives preliminary descriptions of 5 new trematodes he collected, whilst a member of the Johnson-Smithsonian Deep-Sea Expedition, from birds taken at Porto Rico and adjacent areas in 1933.

Galactosomum johnsoni n. sp. and *G. darbyi* n. sp. were taken from the small intestine of a booby (*Sula leucogastra*) and a pelican (*Pelecanus occidentalis occidentalis*) respectively. *Levinseniella minuta* n. sp., from the small intestine of a duck (*Nyroca affinis*), is the smallest species of the genus. *Prohemistomum fajardensis* n. sp. and *P. appendiculatoides* n. sp. were recovered from the small and large intestine of *Sula leucogastra* and the small intestine of *Pelecanus occidentalis occidentalis* respectively. J.N.O.

(b) Price gives preliminary descriptions of 5 new digenetic trematodes taken from fishes in the vicinity of Porto Rico during February and March, 1933, by the Johnson-Smithsonian Deep-Sea Expedition.

These are *Steringotrema ovata* from the pyloric caeca of *Opisthonema oglinum*, *Pycnadena piriforme* from *Monocanthus hispidus*, *Lecithostaphylus atherinae* from *Atherina araea*, *Plagioporus fusiformis* from an eel (*Xenomystax* sp.), and *Podocotyle lanceolata* from *Polymixia* sp., the four last from the intestine in each case. The author expresses doubt as to the systematic position of the genus *Pycnadena*, and he transfers the 12 species of *Lebouria* Nicoll to *Plagioporus*. J.N.O.

43—South African Medical Journal.

- a. GOPSILL, W. P.—“Rotylon as an anthelmintic.” XIII (2), 43-45. [1934.]

(a) Rotylon, an aromatic compound, is found by Gopsill to have an efficient anthelmintic action against hookworm. Worms are passed in the stools for 4 days after treatment.

It has several advantages over CCl_4 and oil of chenopodium as no symptoms, other than slight abdominal colic and peristalsis, are experienced by the patient. No pathological effects occur if the drug is administered on a full stomach and in most cases it acts, not only as an anthelmintic, but also as an aperient. P.A.C.

44—Southern Medical Journal.

- a. GARRISON, H. F.—“A comparative study of the value of tetrachlorethylene as a means of ultimate control and eradication of hookworm disease in children.” XXVII (1), 24-28. [1934.]

(a) In the cases of hookworm in children treated by Garrison, oil of chenopodium proved ineffective in 39 per cent., and carbon tetrachloride was ineffective in 45 per cent. Of 218 positive cases given the same doses of tetrachlorethylene as had been used in the carbon tetrachloride administrations, only 7 per cent. remained positive. In further new cases tetrachlorethylene gave 98 to 100 per cent. cures. Garrison considers it to be the safest, most economical and best treatment for hookworm disease in children. R.T.L.

45—Technical Bulletin, Virginia Agricultural Experiment Station.

- a. THRELKELD, W. L.—“The life history of *Ostertagia circumcincta*.” No. 52, [Reprint 24 pp.] [1934.]

(a) Threlkeld has followed experimentally in lambs the life cycle of *Ostertagia circumcincta*. 17 days elapsed from the initial infection to the first appearance of eggs in the faeces.

The eggs hatch within 24 hours. The second stage larvae develop during the 3rd and 4th days. The infective larvae appear on the 5th and 6th day. 48 hours after oral introduction the larvae have ecdysed, sexual differentiation has commenced and by the 4th day practically all the larvae are coiled deeply within the mucosa of the abomasum which is highly inflamed, dotted with small elevated areas and characterized by petechial haemorrhages. On the 8th day the larvae have reached the 4th and 5th stages within the mucosa. By the 9th day the larvae have lost their sheaths and exhibit all the characteristics of developing adults. A few gravid adults were found on the 15th day. No evidence of migration in the blood stream or tissues was found. Details of the larvae are given in tabular form and microphotos illustrate the various stages of development. R.T.L.

46—Tierärztliche Rundschau.

- a. GRZIMEK, B.—"Repetitorium der Geflügelpraxis." XL (2), 22-24. [1934.]
- b. HOCK, R.—"Ueber die Beurteilung abgestorbener Finnen (§ 34 Ziff. 2 B.B.A.)." XL (2), 26. [1934.]
- c. BEYDEMÜLLER.—"Die Spulwurm- und Bandwurmkrankheit der kleinen Haustiere und ihre Bekämpfung mit Nemural und Askaridol 'Bayer'." XL (3), 43-46. [1934.]

(a) In a resumé of some parasitic diseases of a few domestic birds, Grzimek considers briefly the causative organism, the lesions produced and mentions therapeutics and prophylaxis.

Cestodes, Ascaridia and Heterakis are treated very briefly but *Amidostomum anseris*, the stomach worm of geese, and gapes are each apportioned a separate section and considered at some length. He mentions certain remedies (Sol. Lugol, Tracheolyt), alleged to be useful in the treatment of gapes.

Infection with *Prosthogonimus pellucidus*, the intermediate host of which is a dragon fly, is also considered in some detail, particularly the clinical symptoms observed in affected birds. P.A.C.

(b) Hock here discusses the meat-inspection regulations in Germany in so far as they concern meat containing dead cysticerci. The existing regulations condemn such meat, and this the author considers unnecessary. If the dead cysticerci are so numerous as to render the meat "substantially changed," then it can be condemned under other sections of the regulations. If the dead cysticerci are few, then the meat is, in the author's opinion, not unfit for consumption. B.G.P.

(c) Beydemüller recommends the use of "Askaridol Bayer" against the ascarids of dogs, cats and pigs, and "Nemural" against tapeworms in dogs and cats. A combination of the two drugs forms a useful anthelmintic for poultry. Such a mixture should not be given to carnivores; the Nemural has a purgative action which does not allow time for the Ascaridol to take effect. B.G.P.

47—Tijdschrift voor Diergeneeskunde.

- a. TEN BROEKE, A. E.—"Onderzoek van een lintwormmiddel." LXI (1), 21-22. [1934.]

(a) "Cesarine" tablets contain filicic acid, filmaron and saponins which gave a positive haemolysis test. The percentage composition of the

tablets is given. The tablets are definitely toxic and should be used with caution and not repeated on two successive days as recommended in the directions.

H.M.

48—Transactions of the American Microscopical Society.

- a. DICKERMAN, E. E.—“Studies on the trematode family Azygiidae. I. The morphology and life cycle of *Proterometra macrostoma* Horsfall.” LIII (1), 8-21. [1934.]
- b. MACY, R. W.—“*Prosthogonimus macrorchis* n. sp., the common oviduct fluke of domestic fowls in the Northern United States.” LIII (1), 30-34. [1934.]
- c. TALBOT, S. B.—“A description of four new trematodes of the subfamily Reniferinae with a discussion of the systematics of the subfamily.” LIII (1), 40-56. [1934.]
- d. LINTON, E.—“A pseudophyllidean cestode from a flying fish.” LIII (1), 66. [1934.]
- e. DOBROVOLNY, C. G. & HARBAUGH, M. J.—“*Cysticercus fasciolaris* from the red squirrel.” LIII (1), 67. [1934.]

(a) Dickerman gives morphological descriptions of the cercaria and adult of *Proterometra macrostoma* and outlines the probable life cycle of the fluke.

The larva belongs to the *Mirabilis* group of cystocercous cercariae, the members of which are reviewed and discussed by the author, and was discovered in snails (*Goniobasis livescens correcta*) from the Des Plaines River, west of Evanston, and Hickory Creek, New Lenox, Illinois. Infection experiments were carried out on fish and a number of successfully infected blue gills (*Helioperca incisor*) yielded trematodes identical with the distome of the cercaria. The crappie (*Pomoxis sparoides*) and sunfish (*Eupomotis gibbosus*) also contained similar flukes.

The author considers *Cercaria macrostoma* Faust, 1918 synonymous with the cercaria of *P. macrostoma* which resembles *C. fusca* Pratt, 1919. A key to the genera and species of the family Azygiidae, to which the fluke belongs, is given as well as the diagnostic characters of the genus *Proterometra*.

J.N.O.

(b) Macy gives a morphological description of *Prosthogonimus macrorchis* n. sp., a trematode parasite of the oviduct and bursa Fabricii of domestic fowls in the Northern United States and the cause of a serious poultry disease.

The material studied by the writer was reared in domestic hens from typical cysts with thick, striated walls taken from dragonflies of the genera *Tetragoneuria* and *Leucorrhinia* from Minneapolis, Minnesota. The form is distinguished from the other 15 species of the genus by a combination of characters and although it superficially resembles *P. pellucidus* it is separable from that species on two characters. *P. macrorchis* has the ventral sucker considerably the larger of the two and the vitelline glands do not extend posterior to the testes while in *P. pellucidus* the suckers are subequal and the vitelline glands extend posterior to the testes. Some degree of variation in the size of the testes and distribution of the vitellaria was observed in specimens reared in domestic ducks and a crow; these are considered as modifications due to physiological differences of the hosts.

J.N.O.

(c) From an examination of 260 snakes collected during the summers of 1928-1932 from the vicinity of the Biological Station of Michigan University and Randolph County, West Virginia, Talbot found a number of trematode species including 4 which are described as new. These are: *Macrodera verlatum* n. sp., from the lung of *Natrix sipedon*; *Renifer orula* n. sp., from the mouth of the above host; *Zeugorchis megametricus* n. sp., from the oesophagus of *Thamnophis sirtalis*; and *Pneumatophilus foliaformis* n. sp., from the lung and trachea of *Natrix sipedon*. The author presents a review of the Reniferinae, to which the 4 new species belong. A revised diagnosis of the subfamily is proposed in which larval characters are used as a basis for the classification of the Reniferinae as a natural group. All the genera of this subfamily, a key to which is given, are reviewed and new diagnoses have been presented for five of them. J.N.O.

(d) Linton records an immature Pseudophyllidean cestode from a flying-fish (*Exocoetes volitans*) which differs markedly from any related forms found in fishes of the Woods Hole (Mass., U.S.A.) region. A very brief description is given, including the principal measurements. J.N.O.

(e) Dobrovolny and Harbaugh report the occurrence of *Cysticercus fasciolaris* in a liver cyst in a wild red squirrel (*Sciurus niger rufiventer*) shot near Manhattan, Kansas, in November 1933. The form has apparently not been reported previously from this host and a brief description, including measurements of the scolex, rostellum, hooks and other parts, is given. J.N.O.

49—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. BACKHOUSE, T. C.—“*Anopheles punctulatus* as an experimental intermediate host of *Wuchereria bancrofti*.” xxvii (4), 365-370. [1934.]
- b. YENIKOMSHIAN, H. A. & BERBERIAN, D. A.—“The occurrence and distribution of human helminthiasis in Syria and the Lebanon.” xxvii (4), 425-435. [1934.]
- c. TAYLOR, E. L.—“The production of malformed eggs by immature *Fasciola hepatica*.” xxvii (5), 499-504. [1934.]
- d. DIXON, P. K.—“Age incidence of schistosomiasis; and species of malaria parasite in Katanga.” xxvii (5), 505-506. [1934.]
- e. SAYERS, E. G.—“The filarial intradermal skin test in tropical myositis and muscle abscess.” xxvii (5), 507-509. [1934.]

(a) In New Guinea Backhouse succeeded in obtaining full larval development of *Filaria bancrofti* in *Anopheles punctulatus* and in *A. punctulatus* var. *molucensis*. R.T.L.

(b) The incidence of helminth infection varies in different parts of Syria. In the northern section and in the interior *Ascaris* and *Trichuris* are common. In the coastal zone and on the Orontes and Euphrates ankylostomes are very common while *ascaris* is rare. *Taenia saginata* prevails especially in and around Beirut. Other records of interest are:—25 cases of *Trichostrongylus* sp., 51 of *Hymenolepis nana*, 18 of *Dicrocoelium dendriticum* and 7 of *Fasciola hepatica*. Some of the latter may have been due to ingestion of infested livers. R.T.L.

(c) Taylor finds that the production of malformed eggs is apparently a normal process in the early stages of the activity of the generative organs of *Fasciola hepatica* in sheep, and may be of some clinical value in indicating the period at which the infection was acquired. R.T.L.

(d) Schistosomiasis infections vary strikingly with age. It is rare under 5 years of age and increases to a maximum at 15 years. Ova were never found by Dixon in patients over 40 years old. R.T.L.

(e) Only one of eight cases of tropical myositis gave a positive reaction with *Dirofilaria* antigen, and this is regarded by Sayers as evidence of considerable value against the hypothesis that this disease is a complication of filariasis. R.T.L.

50—Veterinary Record.

- a. BECKETT, E. F.—“Notes on some pig diseases.” XIV (7), 179-184. [1934.]

(a) Beckett in discussing pig diseases in general, points out that the problem of parasitic infestation is one of the greatest economic importance. He considers *Ascaris* to be the most important and briefly considers its prevention and treatment, recommending drenching with oil of chenopodium in linseed oil followed by salts in the food. T.W.M.C.

51—Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz.

- a. GOFFART, H.—“Die Bestimmung von Rüben-, Hafer- und Kartoffelnematoden auf Grund von Bodenuntersuchungen.” XLIV (1), 36-41. [1934.]

(a) Goffart describes morphological variations between the cysts, eggs, and larvae of the potato, oat and beet strains of *Heterodera schachtii* whereby he claims that identifications can be made and advice on crop rotations given without observations on the host plants.

An identification key is given. The cysts can be distinguished by shape, colour and dimensions. Beet and oat strains can be further differentiated by the shape of the eggs and the graphed measurements of the larvae, the former giving a one peaked and the latter a two peaked curve. M.J.T.

52—Zentralblatt für Bakteriologie. Abteilung I. Originale.

- a. TRAWIŃSKI, A. & MATERNOWSKA, I.—“Ueber Präzipitationsreaktion bei Trichinose.” CXXXI (1/2), 10-18. [1934.]
b. DOERR, R. & MENZI, E.—“Beitrag zu den Beziehungen zwischen Trichinen und Tumoren.” CXXXI (3/4), 129-132. [1934.]

(a) Trawiński and Maternowska found that specific immune bodies were produced in a rabbit experimentally infected with *Trichinella* such as to give positive precipitation reactions in serum with suitably prepared antigen. At 37°C. the reaction occurred in a period varying between 30 minutes and 6 hours. Its specificity was established by negative reactions with *Ascaris* and *Echinococcus* antigens in sera from trichinous rabbits and with *Trichinella* antigen in normal sera. The preparation of the antigens is described in detail and the results are summarized in 3 tables. B.G.P.

(b) Doerr and Menzi describe the case of a rat heavily infested with trichinella in which a spindle celled sarcoma was present in the substance of the diaphragm. In places the trichinella cysts were surrounded by the sarcoma and here they showed signs of degeneration. It is unlikely, therefore, that they would be able to establish themselves in the tissue of a pre-existing tumour, as was suggested by both Groth (1864) and Babes (1906). There was probably a causal relationship between the invading embryos and the tumour. B.G.P.

53—Zoologischer Anzeiger.

- a. RIETSCHER, P. E.—“Ueber eine neue Hymenolepis aus einem Kolibri. Zugleich ein Beitrag zum Rechts-Links-Problem bei den Cestoden.” cv (5/6), 113-123. [1934.]
- b. BÖHM, L. K. & GEBAUER, O.—“Zum System der Familie der Metastrongylidae Leiper 1908.” cv (11/12), 287-294. [1934.]
- c. ALLGÉN, C. A.—“Bipolarität in der Verbreitung frei lebender Nematoden.” cv (11/12), 331-334. [1934.]
- d. RAVEN, B. & SCHUURMANS STEKHOFEN, jr. J. H.—“Zur Frage der Exkretion bei den Rhabditiden.” cvi (1/2), 17-20. [1934.]
- e. ALLGÉN, C. A.—“Ueber einen Fall von Wundheilung bei *Theristus setosus* (Bütschli).” cvi (1/2), 25-26. [1934.]

(a) Rietscher describes *Hymenolepis inhamata* n. sp. from the humming bird *Eupetionema macroura* from Brazil, and also discusses right- and left-sidedness in cestodes.

In cestodes with unilateral genital pores anomalies are occasionally met with; a single segment in a strobila may be reversed or the whole strobila may be reversed. Thus *H. inhamata* normally has the pores on the right side, but in one specimen they were on the left. Similarly, the excretory system may show inversion independently of the genital system. The author discusses the origin of these anomalies.

B.G.P.

(b) Böhm and Gebauer regard the classification of the Metastrongylidae proposed by Skrjabin and by Schulz, Orlov & Kutass, both in 1933, as far too complicated. They suggest a simplified classification in which the stouter, shorter genera with a posterior vulva, *Angiostrongylus* and *Elaphostrongylus*, form a new subfamily ANGIOSTRONGYLINAE. Similar forms with a central vulva (*Bronchostrongylus*, *Troglostrongylus*, *Crenosoma* and *Skrjabinstrongylus*) form another new subfamily BRONCHOSTRONGYLINAE. The remaining genera, long and thin, form the METASTRONGYLINAE, except that *Filaroides* and *Muellerius* are regarded as falling into the PSEUDALIINAE R. & H. 1909. The authors include this subfamily, with its existing genera, in the Metastrongylidae. *Oslerus* and *Osleroides* are regarded as Spiruroidea.

B.G.P.

(c) Allgén discusses the distribution of marine free-living nematodes with special reference to the fauna of arctic and antarctic seas. Species with bipolar and unipolar distribution are mentioned and their significance is discussed.

M.J.T.

(d) Raven and Schuurmans Stekhoven describe the excretory apparatus, as observed by them, in *Rhabditis strongyloides* and *R. elongata*, and compare their findings with those of Chitwood. The duct leading from the excretory pore runs back to a renette cell, at its junction with which there is a small pulsating ampulla. There is no obvious connection with the lateral canals.

B.G.P.

(e) Allgén describes a specimen of the free-living marine nematode *Theristus setosus* in which the tip of the tail had broken and the wound had healed.

B.G.P.